# An Improved HIC Using A New Ordering And Grouping Algorithm

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## Summary

A linear group-wise successive interference canceller in a synchronous CDMA system is considered in this work. The proposed hybrid detector that combines successive and parallel cancellation techniques makes use of advantages offered by the two techniques. The convergence of the hybrid interference cancellation (HIC) detector is guaranteed by an adjustable parameter that depends upon the largest eigenvalue of the system's transition matrix. Since this largest eigenvalue is difficult to estimate, an upper bound is necessary for successful convergence. For this reason, we propose a new ordering and grouping algorithm that yields a tight upper bound, which, in turn, results in a higher convergence speed. Simulation results show that a significant improvement in performance is obtained when this technique is used.